



BANK OF CANADA  
BANQUE DU CANADA

Discussion Paper/Document d'analyse  
2013-1

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## Acknowledgements

The Bank of Canada's Wage Setting Survey was a major work effort for the Regional Analysis Division of the Canadian Economic Analysis Department at the Bank. Many people have helped bring this project to fruition. Along with the authors, face-to-face visits were conducted by Farid Novin, Gordon Wilkinson, Mark Illing, Geoff Wright, Hung-Hay Lau, Michael Dolega, David Dupuis, Daniel de Munnik and Kevin Reinhardt.

Along the way we received support and encouragement from senior managers at the Bank. In particular, we wish to thank Lori Rennison, Sharon Kozicki, Stephen Murchison, Brigid Brady and Bob Amano. Jose Dorich was an invaluable resource in linking key results with model implications. Both Naveen Rai and Jane Pinto provided excellent research assistance at various stages of the project. Lise Pichette and Sarah Miller reviewed intermediate drafts and provided useful comments. As is always the case, Greg Bauer and Glen Keenleyside helped steer the final stages of our work through the editorial process. Their efforts are always helpful and welcomed.

Finally, helpful comments were received by participants at several internal and external seminars. These include: the 2007 Canadian Economics Association annual meeting held at Dalhousie University in Halifax, the 2008 Canadian Economics Association annual meetings held at the University of British Columbia in Vancouver, the 2009 Bank of Canada Research Fellowship meetings, and private workshop meetings held at the Federal Reserve Bank of Kansas City in August 2010.

## Abstract

The Bank of Canada conducted a Wage Setting Survey with a sample of 200 private sector firms from mid-October 2007 to May 2008. Results indicate that wage adjustments for the Canadian non-union private workforce are overwhelmingly time dependent, with a fixed duration of one year, and are clustered in the first four months of the year, suggesting that wage stickiness may not be constant over the year. Ad hoc adjustments between these fixed dates are rare, but when they do occur they are almost always upward and often in response to tight labour markets. The market wage rate is the most important factor managers consider when setting wages for their employees. Depending on firm size, different strategies are used to gain information about the market wage. Other important factors taken into account when setting wages include the firm's profitability, its difficulty in attracting staff and workers' productivity. While many managers acknowledge a link between the wage decision and inflation, very few use formal wage indexation rules such as a cost-of-living adjustment. Rather, most describe an informal backward-looking link. Survey results also suggest that managers are very reluctant to cut nominal base wages in times of weak demand. Managers are more likely to cut incentive pay, which would allow some flexibility in total compensation even if base pay is inflexible, or reduce the quantity of labour inputs (hours and employees).

*JEL classification: E24, J33, M52*

*Bank classification: Labour markets; Transmission of monetary policy*

## Résumé

La Banque du Canada a mené une enquête sur l'établissement des salaires auprès d'un échantillon de 200 entreprises privées de la mi-octobre 2007 au mois de mai 2008. D'après les résultats, pour les travailleurs canadiens non syndiqués du secteur privé, les rajustements salariaux interviennent dans une très forte majorité à intervalle fixe d'une année, et ont lieu surtout au cours des quatre premiers mois, ce qui semble indiquer que la rigidité des salaires n'est peut-être pas constante au cours de l'année. En dehors de ces périodes fixes, les ajustements sont rares mais quand ils se produisent, il s'agit presque invariablement de hausses et celles-ci sont souvent liées à un marché du travail tendu. Pour établir la rémunération de leurs employés, les gestionnaires tiennent principalement compte des taux salariaux du marché. Selon la taille de l'entreprise, ils ont recours à différentes méthodes pour se renseigner sur ces taux. Ils s'appuient également sur d'autres facteurs, notamment la rentabilité de l'entreprise, ses difficultés sur le plan du recrutement et la productivité des travailleurs. Bien que de nombreux employeurs fassent état d'un lien entre leurs décisions en matière de salaire et l'inflation, très peu d'entre eux



appliquent des règles formelles d'indexation, comme un ajustement au coût de la vie. La plupart décrivent plutôt un lien informel de nature rétrospective. Les résultats de l'enquête donnent également à penser que les gestionnaires sont très peu enclins à réduire les salaires de base nominaux en période de faible demande. Ils ont plutôt tendance à abaisser la rémunération incitative, ce qui leur offre une certaine souplesse pour la rémunération globale même si le salaire de base ne change pas, ou à réduire le facteur travail (nombre d'heures et effectif).

*Classification JEL : E24, J33, M52*

*Classification de la Banque : Marchés du travail; Transmission de la politique monétaire*

## 1. Introduction

Most of the time and for many reasons, prices and wages do not react perfectly and instantaneously to macro shocks, including changes in nominal money balances. The nature of these so-called rigidities and their role in our understanding of the macro economy and the transmission of monetary policy has been a key area of interest in the macroeconomics literature for some time. More recently, however, New Keynesian models, the workhorse of modern macroeconomics models, have placed a renewed emphasis on wage rigidities in shaping economic dynamics.

In Canada, for example, Murchison and Rennison (2006) find that the introduction of "sticky" nominal wages in the Bank of Canada's main model for projection and policy analysis (the Terms-of-Trade Economic Model, or ToTEM) plays a very important role in the transmission of monetary policy. Internationally, a consensus has emerged in the literature that both sticky wages and sticky prices are needed to account for the persistence in aggregate output and inflation and to explain the real effects of monetary shocks observed in the data for a broad range of economies (see, for example, Christiano, Eichenbaum and Evans 2005; Huang and Liu 2002). Moreover, the nature of wage rigidities matters. For instance, Levin et al. (2005), using a micro-founded macroeconomic model, show that replacing random-duration, or Calvo-style, wage contracts with Taylor-style contracts, which have a fixed duration, substantially modifies the optimal monetary policy response.<sup>1</sup>

Since one of the benefits of the new macro models is their clear micro foundations, gathering firm-level data is a useful way of addressing basic questions about the nature of wage behaviour. It may also help to distinguish between the various and competing theoretical foundations that matter for wage determination. This information is difficult, if not impossible, to estimate from aggregate data published by central statistical agencies. The aim of our research is to shed additional light on the extent and precise nature of wage rigidities in Canada at the microeconomic level by surveying<sup>2</sup> a representative sample of firms about their wage-setting practices – a complement to earlier survey work at the Bank of Canada on price-setting behaviour.<sup>3</sup>

Several similar wage surveys were conducted in the 1990s.<sup>4</sup> Many were more focused on the existence of downward nominal wage rigidities and the reasons for it (Bewley 1999 is a prominent example), or on testing explicit theories such as the efficiency wage

<sup>1</sup> Erceg, Henderson and Levin (2000) also investigated the importance of nominal wage rigidity when characterizing the optimal monetary policy. In particular, they find that with Calvo wage stickiness, a policy aimed solely at stabilizing inflation is not generally optimal, and may be quite undesirable. More information on Taylor and Calvo contracts can be found in Taylor (1979) and Calvo (1979, 1983).

<sup>2</sup> The use of surveys as a source of micro evidence has a long history in economics, dating back to Hall and Hitch (1939).

<sup>3</sup> Amirault, Kwan and Wilkinson (2006).

<sup>4</sup> Blinder and Choi (1990) and Agell and Lundborg (1995) found fairness to be a major concern driving nominal wage rigidity. Campbell and Kamlani (1997), Kaufman (1984) and Bewley (1999) found that firms were reluctant to cut nominal wages due to their expected negative effects on productivity.

hypothesis (Campbell and Kamlani 1997). Recently, other central banks have also used surveys to elicit additional information about wage-setting practices.<sup>5</sup> The Bank of Canada's Wage Setting Survey, a sample of 200 private sector firms collected from mid-October 2007 to May 2008, builds on this previous research, and broadens into new areas of interest. It asks about the nature of the compensation package; the frequency of wage adjustments and the specifics of the adjustment process; the determinants of wage adjustments; the existence of downward nominal wage rigidity; and the elasticity of substitution between factors of production.

Furthermore, this survey fills a void in our knowledge about wage-setting behaviour in Canada. While data on the duration and nature of private sector union contracts is readily available, significantly less is known about how wages are set in private non-union workplaces, which account for nearly two-thirds of the Canadian labour market. For that reason, the survey focuses primarily on the private non-union wage-setting practices of a representative sample of Canadian firms.

A summary of the main findings is provided below. The remainder of the paper is organized as follows. Section 2 briefly describes the sample and details of the survey process. Section 3 highlights key results in several broad areas. Each subsection is motivated by a question about the wage-setting behaviour of private Canadian firms with regards to their non-union workforce. Key aggregate results are discussed and presented in a standardized tabular form. Section 4 offers a summary and some concluding remarks, and discusses areas for further research.

### **1.1 Summary**

Many of the key findings of this Canadian survey conform well to findings from previous surveys in other countries – including the most recent European findings. Some of the key findings are as follows:

- Base pay and benefits are nearly universal elements of the compensation package that firms offer to their workforce. The importance of incentive pay, job enrichment and flexible work arrangements has increased in the past decade, and these elements are now common at the majority of firms.
- Changes in wages are overwhelmingly time dependent and of a fixed duration. Eighty-five per cent of firms make annual wage adjustments and about two-thirds make this annual adjustment in the first four months of the year; January is the most popular month for adjustments. These results do not vary significantly by sector, firm size or region.
- Ad hoc wage adjustments between annual resets are rare and tend to be concentrated in a narrow segment of the workforce. When they do occur, such adjustments are almost always in an upward direction and in response to tight labour market conditions.

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<sup>5</sup> See Druant et al. (2009) and de Walque et al. (2010) for information about the European Central Bank's Wage Dynamics Network, its wage survey and relevant findings.



- The market wage rate and a firm's profitability are the most important determinants of wage changes. Larger firms use compensation surveys to obtain information on market wage rates, while medium-sized and small firms rely on informal networks.
- A majority of firms acknowledge a link between wage changes and inflation. Of these firms, over half indicate that they look at past inflation exclusively in making that link. Very few firms cite any automatic indexation link between wages and inflation.
- Offshoring production to newly emerging countries does not appear to have a large direct impact on the wages paid by firms. Offshoring is more likely to result in reductions in current and future employment levels.
- Managers report that they are very reluctant to cut money base wages, suggesting that the base pay component of nominal compensation may be rigid downwards. Managers are more likely to reduce incentive pay, which may allow some flexibility in total compensation even if base pay is inflexible. Other common measures to cut labour costs include laying off staff and reducing hours worked.

## 2. Sample and Survey Process

The Wage Setting Survey was a major initiative of the Regional Analysis Division of the Bank's Canadian Economic Analysis Department and drew heavily on the survey experience of its staff.<sup>6</sup> The survey took the form of in-person interviews conducted by staff economists.<sup>7</sup>

The sample of 200 private sector firms was collected from mid-October 2007 to May 2008. Firms were selected to ensure a quota sample<sup>8</sup> that was representative of the sectoral distribution of output in Canada. The sample was also constructed to ensure adequate coverage of firms based on their size, measured by the number of employees, and the region of their headquarters. This sampling method is very similar to the ongoing approach used to collect data for the *Business Outlook Survey* (BOS). Table 1 provides both the targeted number of firms for each region, sector and size, and the actual number of completed surveys collected for these same categories.<sup>9</sup>

Since information about private non-union Canadian wage-setting behaviour is particularly lacking, this survey focused exclusively on this portion of the workforce. Public sector organizations were therefore not included in the Wage Setting Survey. Private firms with some level of unionization were not excluded, however. Rather, they

<sup>6</sup> For more than ten years, economists from the Bank of Canada's regional offices have been conducting surveys with private firms to gauge current economic conditions. The aggregate results of these visits are published quarterly as the Bank of Canada's *Business Outlook Survey*.

<sup>7</sup> The full questionnaire is provided in Appendix A.

<sup>8</sup> For more information on quota sampling, see Martin (2004). In brief, the units in this type of sample are selected on the basis of certain criteria. Consequently, selection of the firms in the sample is not random. When a selected firm cannot participate in the survey, it is replaced by another having the same characteristics. See de Munnik et al. (2012) for a discussion of the statistical accuracy of this type of sampling.

<sup>9</sup> Appendix B provides a summary of key characteristics of firms in the sample (product markets, recent growth, occupational mix, job tenure, workforce characteristics and cost structure).



were asked to focus their comments and answers on the non-union portion of their workforce. Thirty-seven per cent of the firms in the sample employ some unionized workers. Of these, the percentage of their workforce represented by a union ranges between 2 and 89 per cent. The average rate of unionization for the entire sample is approximately 18 per cent. This sample is large enough to provide useful information about differences in wage-setting behaviour among firms with and those without a union presence.

The representatives of the participating firms were senior managers deemed to have a thorough knowledge of the wage-setting practices of their companies. In large and medium-sized firms, the respondent was typically the director of human resources, often accompanied by the vice-president of finance or the chief financial officer (CFO). In smaller firms, which may lack a dedicated human resources department, interviewers often met with the vice-president of finance, the CFO or the president of the company. Interviews usually took from 45 to 75 minutes, depending on the complexity of a firm's human resources strategy.

The sample period preceded the 2009 recession and, for many firms, the 1991 recession – seventeen years earlier – was at most a distant memory. Furthermore, this period was also one over which Canadian labour markets, particularly in Western Canada, were fairly tight by any measure. These conditions often made discussion about seemingly unlikely events, such as wage freezes and cuts, complex for firms to relate to, and influenced the results in several cases. These will be noted in section 3 as they arise.

**Table 1: Sample distribution**

	Number of firms in the sample	Targeted number of firms
<b>By region</b>		
Atlantic provinces	31	30
Quebec	43	40
Ontario	50	50
Prairies	33	40
British Columbia	44	40
<b>By sector</b>		
Primary	14	16
Manufacturing	43	42
Construction, information and cultural industries, transportation and warehousing, and utilities (CITU)	45	46
Wholesale and retail trade	33	33
Finance, insurance and real estate (FIRE)	31	30
Community, business and personal services (CBPS)	35	33
<b>By size</b>		
Small	62	66
Medium	75	67
Large	64	67
<b>Total:</b>	<b>201</b>	<b>200</b>

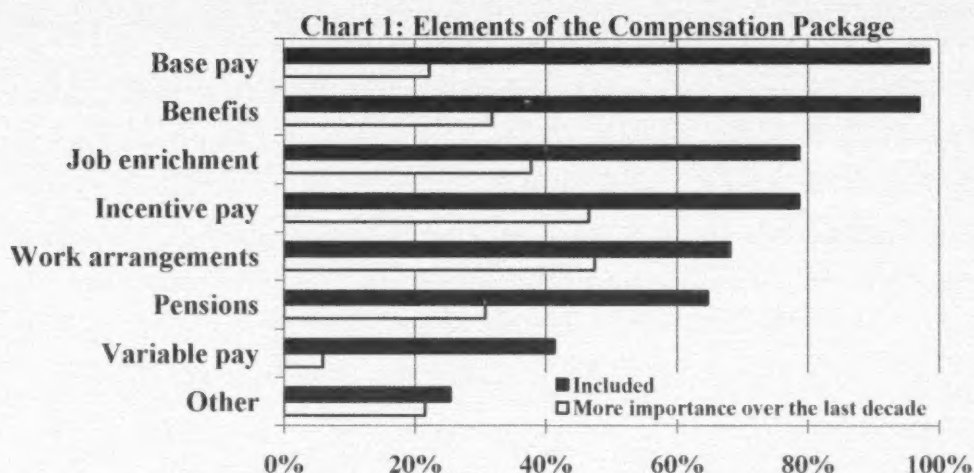
### **3. Key Results from the Wage Setting Survey**

#### **3.1 What is included in the compensation packages of workers and how have the packages changed?**

Firms compensate their workers in a variety of ways. Chart 1 provides a summary of how pervasive certain elements of compensation are in a representative sample of Canadian firms and how this has evolved over time.<sup>10</sup> Not surprisingly, base salary and wages are an element of pay at nearly all firms. The same is true of benefits – although the level of benefits, or what is included in these benefits, does vary widely across firms.

In addition to these nearly universal forms of compensation, three other forms are offered to at least some of the employees at the vast majority of the firms that participated in this survey. Incentive pay programs, such as bonuses and stock options, are reported by 79 per cent of the sample. Job-enrichment measures, such as training and conferences, are reported by 78 per cent of the sample. Work arrangements, such as flexible work schedules and extra vacation, are reported by 68 per cent of the sample.

<sup>10</sup> Firms were asked to include any elements that apply to at least some of their employees. These percentages therefore likely overestimate the percentage of the workforce that receive these benefits.



Pension plans, or other forms of shared retirement savings programs, were reported by more than half of the sample. As with some of the other forms of compensation, firm size played a role in these results – large (80 per cent) and medium-sized firms (67 per cent) reported higher use of pensions than did small firms (39 per cent). Commissions, piecemeal pay and other forms of variable compensation that move directly with output were reported by 42 per cent of firms surveyed. However, these forms of pay did not apply to all staff. For example, sales staff were often singled out as the main recipients of variable pay. Finally, 25 per cent of firms provided other forms of compensation (not included on the questionnaire) – car allowances for senior staff and salespeople, tuition fee reimbursements, sabbaticals, educational leave or employee discounts were some of the more common examples of other forms of compensation.

Almost half of the sample reported that incentive pay and work arrangements have become relatively more important as a component of total compensation over the past decade. Respondents explained that employees' desire for a better work-life balance had recently prompted flexible work arrangements to be introduced. As for incentive pay, senior managers explained that this type of compensation, when designed correctly, allows corporate and individual goals to be more clearly aligned. A wide range of discretionary or formula-driven profit sharing or goal-driven arrangements were described, and they focused on many objectives (compensating star performers, retaining staff, compensating staff that play a critical role for the corporation, etc.).

### 3.2 What type of adjustment rules do firms follow in setting wages?

Eighty-nine per cent of the firms surveyed described their wage adjustment as occurring on a fixed timing and, of these, nearly all firms cited an annual wage change (Table 2, Question B2). This strongly suggests that Canadian firms typically follow time-dependent rules with a fixed duration (a Taylor-style contract) rather than a random duration (a Calvo-style contract). These results hold for all six sectors, all sizes of firms, and all five regions. Druant et al. (2009) and de Walque et al. (2010) find similar results

for Europe, where wages are also found to typically (54 per cent) set for a fixed period of one year.<sup>11</sup>

**Table 2: Frequency of wage adjustments**

Question	Survey question and key results
B1	<b>Do you adjust wages:</b> [n=201, entire sample] on a fixed timing (89%)    sporadically (11%)
B2	<b>How frequently do you adjust wages?</b> [n=178, firms replying 'yes' to B1] more than once a year (3%)    once a year (96%)    less than once a year (1%)
B3	<b>Do you occasionally make adjustments outside the normal schedule to respond to significant/unanticipated developments?</b> [n=177, firms replying 'yes' to B1] yes, significant portion (28%)    yes, but very rare/individuals (24%)    no (48%)
B4	<b>If yes, are these adjustments:</b> [n=93, firms replying 'yes' to B3] most of the time upward (99%)    most of the time downward (0%) as often upward as downward (1%)

Of the remaining 11 per cent of firms that reported wages as being adjusted sporadically, some described wages as being set on a case-by-case basis for individual employees based on performance. Others follow wage changes by competitors or a change in the minimum wage. Finally, some firms set wages according to fixed wage reviews, but reported that not all reviews result in wage resets. Sporadic wage adjustments are disproportionately represented by small firms.

### 3.3 Do firms ever adjust wages between standard wage-setting dates?

The benefits of fixing wages for a predetermined amount of time, often annually, clearly outweigh the costs for the vast majority of firms most of the time. Still, unanticipated events may put pressure on this arrangement as the year progresses. Firms with a fixed timing for wage resets were therefore asked if they occasionally make adjustments outside the normal fixed schedule to respond to significant unanticipated events (Table 2, Question B3). Forty-eight per cent indicated that they never adjust wages outside the annual wage reset. In some cases, managers participating in the survey worried that adjusting wages between fixed dates would set a dangerous precedent or, alternatively, be construed as unfair by other staff not receiving an adjustment. A further 24 per cent acknowledged that ad hoc wage changes do occur but are rare and/or are given only to individuals or very small groups and therefore would have little influence on overall wages.

<sup>11</sup> This survey was undertaken under the direction of the Wage Dynamics Network, a research network of the European Central Bank and the national central banks of European Union countries.



Only the remaining 28 per cent of fixed-timing wage setters reported having given ad hoc adjustments between annual wage changes to a significant portion of their workforce.<sup>12</sup> However, regional differences in this national result are worth noting. Nearly half (46 per cent) of the firms in Western Canada, where labour markets were tight during the survey period, reported ad hoc wage adjustments between their fixed adjustments. In Central and Eastern Canada,<sup>13</sup> where labour markets were not as tight, only 18 per cent of firms with fixed timing on wage adjustments reported having changed wages for a significant portion of their workforce.<sup>14</sup>

Managers were asked to explain why the ad hoc adjustments had taken place. The most common answers were: to avoid or respond to competitors "poaching" labour; to deal with shortages of labour (generalized and/or occupation specific); to respond to regionally tight labour markets; or, to respond to perceptions of higher wage pressures or minimum wage changes. Most firms were therefore responding to tight labour markets and their symptoms. This may help explain why all but one firm reported that ad hoc adjustments are mostly upward (Table 2, Question B4). The economic context may have played a role here, since economic conditions were generally good in the decade prior to the survey. Still, for some firms in the export, manufacturing and tourism sectors, conditions prior to the survey had actually been very challenging (11 per cent of the sample cited weak or negative conditions). Even these firms did not report downward ad hoc adjustments, suggesting an important asymmetry in the responsiveness of wages to economic shocks. Firms in the finance, insurance and real estate (FIRE) sector and the community, business and personal services (CBPS) sector were more likely to have had ad hoc adjustments than their counterparts in other sectors. These sectors also reported more difficulties recruiting new staff.

These results suggest that firms typically reset wages on a fixed annual timing, but that when labour markets become very tight, as they were in Western Canada in the years prior to the survey, some firms will react by adjusting wages between pre-established reset dates. In the minority of cases where these ad hoc adjustments were reported in the Wage Setting Survey, they commonly applied to an easily identifiable group such as an occupational group or workers in a specific region or city. Only 8 per cent of the entire sample reported ad hoc adjustments that applied to the majority of their workforce.

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<sup>12</sup> "Significant" here is defined as applying to 5 per cent or more of their entire workforce.

<sup>13</sup> Central and Eastern Canada includes Ontario, Quebec and the four Atlantic provinces.

<sup>14</sup> While this question was originally intended to reflect behaviour over a long period of time, the commodity price boom occurring in Western Canada during the time of the survey likely played a role in these results. To the extent that this is the case, the results for Central and Eastern Canada may be more reflective of usual or typical responses to this question.

### 3.4 Are wage adjustments evenly distributed across the year?

Firms were asked a two-part question to determine how wage adjustments are distributed across the year (Table 3). Seventy-eight per cent of firms responded that wages are typically adjusted at the same time for the majority of the workforce and two-thirds of all adjustments take place in the first four months of the year. Very similar results are reported for Europe (see Druant et al. 2009; de Walque et al. 2010). The implications of these results are discussed in section 4.3.

Table 3: Timing of wage adjustment						
Question	Survey question and key results					
B5	Do the majority of your workers receive their adjustment at the same time? [n=200 (na=1), entire sample] <div>yes (78%)no (22%)</div>					
B6	If yes, in what month? [n=148 (na=8), firms replying 'yes' to B5] <div>Jan (28%)Feb (7%)Mar (14%)Apr (16%)May (5%)Jun (7%) Jul (6%)Aug (2%)Sep (6%)Oct (2%)Nov (2%)Dec (4%)</div>					

Comments from respondents suggest that wage adjustments are often synchronized in some way to the fiscal year of the firm. Managers describe a planning, information-gathering and budgeting process that typically occurs in late autumn. Soon after, recommendations and approvals occur and an adjustment follows. For other firms, wages are reviewed and set at a time when business is slower (typically winter), or right before the beginning of "busy season" (often spring and summer). All these factors suggest that Q1 or early Q2 wage adjustments are advantageous to a firm. Other managers stated that they did not know or remember why wages were set at this time of the year, but believed this to be the norm in their sector and/or for the economy as a whole.

For the remaining 22 per cent of firms, the majority of workers do not receive their adjustment at the same time. In these cases, workers may receive wage adjustments on the anniversary of their start date with the firm, or on their birthday; wage adjustments would presumably be relatively well staggered throughout the year. In other cases, adjustment dates are determined at the level of the plant, department, occupation, region or some other institutional arrangement that does not include the majority of the firms' workforce. Even for these, however, reset dates of January to April are common. Historical norms seem important in these cases. In some cases, managers explained that after a merger, plants or different divisions of a newly formed company may choose to stay with the "legacy" reset date to avoid disruptions or suspicions by employees, or to avoid busy seasons in specific sectors or occupations.

### 3.5 Has the frequency of wage adjustments changed over time?

Three-quarters of respondents have not changed the frequency of compensation adjustments in the past decade (Table 4). In some cases, managers believed changing well-established compensation procedures, such as the timing and frequency of wage changes, was not optimal and would occur only when absolutely necessary, since it could lead to suspicion or fairness concerns among employees.

Table 4: Change in the frequency of wage adjustments	
Question	Survey question and key results
B7	To the best of your knowledge, has the frequency of compensation adjustments changed in the last decade? [n=201, entire sample] yes (21%)                      no (76%)                      do not know (3%)
B8	If yes, have adjustments become: [n=42, firms replying 'yes' to B7] less frequent (29%)                      more frequent (71%)

A minority of firms that have changed the frequency of wage adjustments were asked if they had become more frequent or less frequent, and why the change had occurred. Twelve of 42 firms reported that wage resets occurred less frequently than a decade ago. Various reasons were cited. In some cases, firms that had faced labour shortages in the Y2K boom (predominantly information technology firms) reported a higher frequency of wage adjustments a decade ago due to the prevalence of ad hoc adjustments or mid-year resets.<sup>15</sup> They had now reverted back to annual wage resets.

On the other hand, 30 of these 42 firms reported more frequent adjustments. In those cases, the reasons were often linked to labour market pressures. Nearly half of these firms operate in the Prairies and less than one-fifth operate in Quebec and Ontario. Comments provide insight into managers' reasoning: "we now do mid-year adjustments to stay competitive"; "still have annual adjustments, but more side deals"; "increased turnover required us to do it." Other managers mentioned that the higher frequency of adjustment was the result of standardized or professionalized human resources practices and the discipline it created – annual wage resets are now truly fixed, whereas, before, wage resets had sometimes slipped past a year if management was busy with other tasks.

Information gleaned from firms reporting changes in the frequency of wage adjustments suggests that wage-reset frequencies may be slightly procyclical. In times of extraordinarily strong economic growth and tight labour markets, the wage-setting frequency may increase and fall back when normal conditions return. Still, this type of behaviour was relatively rare for the majority of firms and often applied to only a subset of employees.

<sup>15</sup> This result is consistent with responses regarding wage adjustments outside of a normal schedule (see Question B3), and further reinforces the idea that ad hoc adjustments typically occur only in tight labour market conditions.

### **3.6 Do inflation considerations enter into wage-setting decisions?**

For 70 per cent of firms surveyed, inflation is a factor in wage-setting decisions (Table 5, Question B10). The majority of firms in all six sectors, five regions and various firm sizes use inflation as an input into their wage-setting decision. Views among the minority of managers who answered that they do not take inflation into account are, however, interesting. Many acknowledged the importance of inflation in setting wages, but said that they take the market wage rate into account when setting their own wage and recognized inflation as being embedded into the market wage rate. In effect, they took inflation into account, but only indirectly. A few other firms, however, said that inflation had become a "non-issue" and that they largely ignored it.

### **3.7 How do firms link wages to inflation?**

Firms that take inflation directly into consideration were asked to describe the nature of the link between inflation and wages (Table 5). In particular, they were asked whether the link is formula driven, like a cost-of-living adjustment (COLA). Results from the survey strongly suggest that the link between inflation and wages is informal. Only 12 per cent of firms reported that wages were automatically linked to inflation, whereas 88 per cent said that inflation was taken into account when setting wages, but that there was no indexation rule. Some implications of this result are discussed in section 4.3.

Firms were also asked whether the link between inflation and wages is forward looking or backward looking. Over half of the firms (57 per cent) that consider inflation in setting wages, in a formal or informal way, said they look at past inflation exclusively as the variable of interest for wage-setting decisions (Table 5, Question B11). The survey therefore suggests that "typical" wage-setting behaviour of private sector non-union firms in Canada is backward looking with respect to inflation.<sup>16</sup> Managers explained that they focus on past inflation because it is safer, and is more easily justified to workers and shareholders or owners than forecasting inflation. Furthermore, they do not want to risk making one of two mistakes: overshooting on wages without the ability to cut wages in future years, or undershooting on wages and alienating their staff until the next adjustment date. Most firms described a "catch-up" to past inflation. Even among the 35 per cent of firms that take both past and expected inflation into account, managers' commentary suggests that past inflation is given more weight than expectations about the future. Only the remaining 8 per cent of firms could be considered as having purely forward-looking expectations.

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<sup>16</sup> These results are similar to results reported for many European countries in Druant et al. (2009).



Table 5: Inflation and wage adjustments	
Question	Survey question and key results
B10	In your wage setting decisions, do you take inflation into account? [n=201, entire sample] Yes (70%) No (30%)
B11	If yes, select the option that best reflects the policy followed: [n=141, firms replying 'yes' to B10] Wage changes are <u>automatically linked to</u> : Past inflation (7%) Expected inflation (1%) Both (4%) Although there is no formal rule, wage changes <u>take into account</u> : Past inflation (50%) Expected inflation (7%) Both (31%)
B12	If the inflation rate turns out to be higher or lower than the expected inflation rate on which your firm had raised base wages, would you make an adjustment the following year? [n=60, firms replying 'expected inflation' or 'both' to B11] Yes (37%) No, by gones are by gones (mistakes not corrected) (63%)
B13	On which inflation rate do you focus? [n=141 (na=1), firms replying 'yes' to B10] Local/city (20%) Regional/provincial (44%) National (54%)*
B14	What time period (past/future) do you focus on? [n=139 (na=2), firms replying 'yes' to B10] < 1 year (4%) 1 year (90%) > 1 year (6%)

\* multiple answers allowed, will not sum to 100%

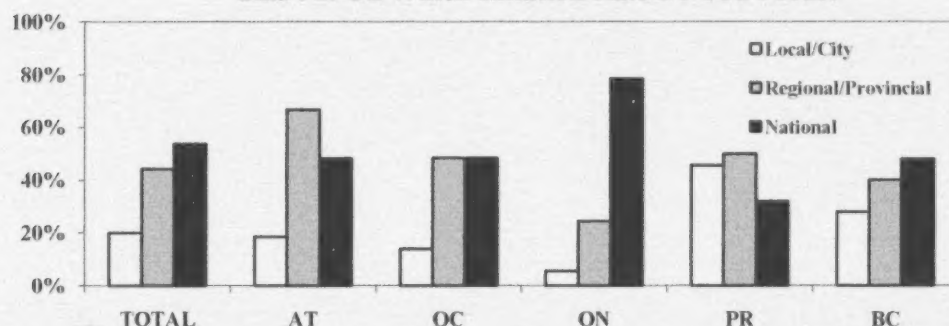
### 3.8 Which inflation rate do firms consider and where do they find information about inflation?

While central banks have national inflation targets to anchor expectations, firms may use a host of inflation figures and sources as information when setting wages. This was a particularly interesting issue in the survey period, given that inflation in some provinces had been running well ahead of the national pace for a period of time. Managers were therefore asked which inflation figures they focus on when adjusting wages.

Of firms that take inflation into account, 54 per cent use national inflation figures, 44 per cent use regional/provincial inflation and 20 per cent use local/city inflation (Table 5, Question B13).<sup>17</sup> Chart 2 illustrates the extent to which responses differ from region to region. Firms in Ontario, Canada's largest province and home to many national firms, use national inflation almost exclusively. Nearly 80 per cent of firms in this region cite national inflation, far more than any other region. In Quebec and British Columbia, both the national and regional inflation figures are of roughly equal prominence. In Atlantic Canada and the Prairies, regional/provincial inflation measures are cited most often. In the Prairies, where inflation pressures had consistently been ahead of the national pace for some time prior to the survey, national inflation figures are the least often cited measures used in the wage-setting decision.

<sup>17</sup> Percentages will not sum to 100 per cent, since some firms had multiple answers.

**Chart 2: On Which Inflation Rate Do You Focus?**



The final question in this section of the questionnaire concerned the time horizon that firms use when they refer to past or future inflation in setting wages. A large majority (90 per cent) of both backward- and forward-looking firms have a 12-month horizon when they take inflation into account for wage-setting purposes (Table 5, Question B14).

### **3.9 Which factors are most important in the wage-setting decision?**

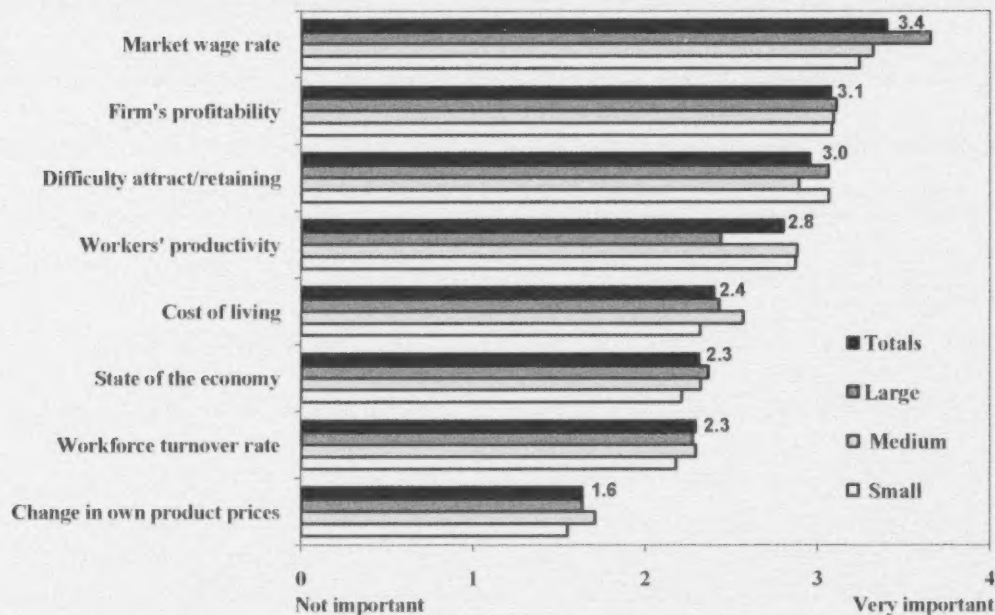
While the previous section focused exclusively on the importance of inflation and the ways in which it may be linked to wage-setting behaviour, this section assesses the relative importance of all factors that firms may take into account when making wage decisions. Firms were given a list of eight factors that may possibly influence their wage-setting decision, and were told to rate these factors on a scale of importance. They were also given the opportunity to list other factors that influence their wage decision.

Results reported in Chart 3 indicate that the market wage rate is the most important factor firms use in setting their wages. It received an average index score of 3.4 out of four.<sup>18</sup> Forty-four per cent of the firms saw this factor as very important. These results are similar for all firm sizes, four of the five regions, five of the six sectors and various other firm characteristics.<sup>19</sup>

<sup>18</sup> The index score is a weighted average (4=very important, 3=fairly important, 2=slightly important, 1=not important, 0=not applicable).

<sup>19</sup> In Quebec, the "firm's profitability" factor scored slightly higher than the market wage rate. Among sectors, firms in the wholesale and retail trade sectors also placed "firm's profitability" slightly higher than the market wage rate.

**Chart 3: Most Important Factors in Your Wage-Setting Decision?**



Beyond the market wage rate, three factors are also consistently considered important: a firm's profitability, difficulty in attracting and retaining employees, and workers' productivity.<sup>20</sup> Workers' productivity is relatively important to medium-sized and small firms when setting wages, but much less important for large firms, which place a heavy emphasis on the market wage rate relative to all other factors.<sup>21</sup> Furthermore, firms in Central and Eastern Canada placed firm's profitability relatively high, while firms in Western Canada gave more importance to the difficulty in attracting employees. These regional differences are likely due to relative differences in labour market performance. Results for Central and Eastern Canada are probably more representative of normal circumstances, whereas data for firms in Western Canada probably reflect tighter-than-normal labour markets in that region.

Other factors (the cost of living, the state of the economy and workforce turnover rates) typically had relatively low scores. Firms often reported that these three factors were tangentially related to other factors of greater importance listed above. For example, the market wage rate reflects, to some extent, the general state of the economy and the cost of living. Furthermore, the workforce turnover rate would be a function of the market wage rate and other factors, including the difficulty in attracting and retaining staff.

<sup>20</sup> To the extent that difficulty in attracting and retaining employees is a proxy indicator of labour market tightness, this result would support the notional link in models with search and matching frictions between labour market tightness and wages. See Blanchard and Gali (2010), for example.

<sup>21</sup> This could reflect the fact that managers at small and medium-sized firms are in a better position to assess workers' productivity contributions.

Finally, firms unambiguously rated changes in their own output prices as being the least important factor for wage-setting decisions. This factor was rated the least important for all firm sizes, all regions and all sectors, without exception. Some firms said prices typically change when input costs change, and so higher prices do not typically mean higher margins.<sup>22</sup> Other firms emphasized that long-term price increases are important for wages, but that short-term, year-to-year fluctuations have to be smoothed, and so the influence on annual wage adjustments is very low. Still others said that wages drive prices, not the other way round. Prices may also be regulated or falling over time, while firms' wages remain in line with market prices for labour.

**Table 6: Output prices and wage adjustments**

Question	Survey question and key results
<b>B9</b>	<p><b>How is the timing of your wage changes related to that of your products or services price changes? [n=197 (na=3), entire sample]</b></p> <p>there is no link between the two (68%)  there is a link but no particular pattern (7%)  decisions are taken simultaneously (5%)  price changes tend to follow wage changes (16%)  wage changes tend to follow price changes (4%)</p>

The link between prices and wages, or lack thereof, is further illustrated in answers to Question B9. In this question, firms were asked to choose one of six statements that best describe the timing of the link between wages and prices (Table 6). Two-thirds of firms reported no link between the two. Many of these added that their output prices and wages were largely determined in different markets and were completely unrelated to each other. The second most cited response (16 per cent) was that price changes tend to follow wage changes. Ten firms reported that the decision was made simultaneously. Only eight firms said that wage changes tend to follow price changes.<sup>23</sup>

### **3.10 Where do firms get information about the market wage rate?**

Results presented in the previous section suggest that the market wage rate plays a dominant role in a firm's own wage-setting decision. However, market wage rates are not set in auction markets and timely data on transactions are not widely circulated. Furthermore, labour is not homogeneous. Firms often need information about many different wage rates in many different markets.

The survey results suggest that firms overcome this information problem by sharing information about current, and possibly even prospective, wages with other firms either directly (through word of mouth) or indirectly (by participating in various types of salary surveys). Specifically, firms that had rated "the market wage rate" as slightly, fairly or very important in Question B15 (Appendix A) were subsequently asked (in Question B19, Appendix A) where they obtain information about market wage rates.

<sup>22</sup> This result is consistent with results presented in Amirault, Kwan and Wilkinson (2006).

<sup>23</sup> Findings for this question are consistent with the European findings of Druant et al. (2009) for Europe.



**Chart 4: Sources of Information About the Market Wage Rate, by Size of Firm**

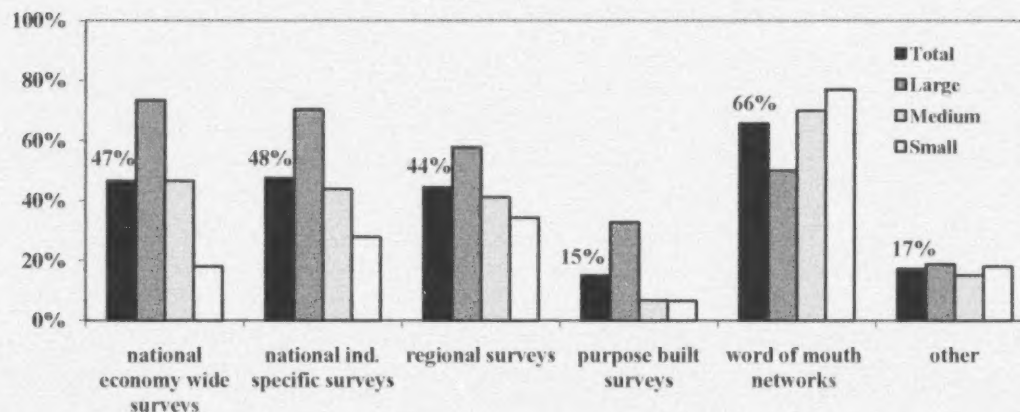


Chart 4 shows the sources firms use to gain information about market wage rates. Sixty-six per cent reported that they use word-of-mouth or informal networks to gather information about the market wage rate, the most widely accepted source of information. Other sources, however, were also widely used. For example, nearly half of respondents use national industry-specific surveys or national economy-wide surveys (48 and 47 per cent, respectively). A further 44 per cent use regional compensation surveys to gain insight about market wages. Fifteen per cent have conducted their own purpose-built surveys and 17 per cent use other sources. Many of these other sources are either Internet-based resources or information from recent union contracts where wage rates are published.

While these results are generally robust across regions and sectors, firms of different sizes have very different strategies for gathering market wage data. Large firms tend to rely on national economy-wide and industry-specific salary surveys as well as regional surveys and informal networks. Small firms, and medium-sized firms to a lesser extent, are more likely to rely on informal networks and word-of-mouth information. Significantly fewer of these firms use national salary surveys.

### **3.11 How have wage-setting strategies changed in the past decade?**

Firms were asked whether the wage strategy they follow had changed over the past decade. Half of the sample (100 firms) acknowledged that it had. Comments typically focused on one or two of the following points (roughly in order of importance):

- A significant portion reported that their current wage strategy was either more formal, more structured or more professional than before. In some cases, greater emphasis on human resources management had led firms to devote more time and energy to these issues. In other cases, changes in wage strategy were an attempt to be more responsive to staffing issues due to labour shortages or concerns about aging baby boomers, or to consolidate best practices in firms that had grown quickly.

- A significant portion said that their current wage strategy was increasingly driven by the market wage rate and the need to be competitive on wages at all times. Several factors were cited, including labour shortages in specific occupations and the aging of the labour force.
- Some firms were more flexible on non-pay items, which is consistent with evidence from Question A12 (Appendix A). By allowing more-flexible work arrangements, more family-friendly policies and other non-pay benefits, firms were increasing work satisfaction without increasing costs.
- In some cases, managers said they gathered more information and/or were more scientific about setting wages than a decade ago. They mentioned the Internet as a resource in facilitating this process.
- A few firms also indicated that they put less emphasis on inflation.

### **3.12 Has offshoring had an impact on Canadian wages?**

In recent years, as a means of lowering input costs, firms in developed economies, such as Canada, have been outsourcing work to firms in emerging economies, such as China or India, that previously would have been done internally. Theoretically, "offshoring" of production by Canadian firms<sup>24</sup> may be expected to have an impact on the wages firms negotiate with their Canadian workforce. More generally, increased competition from firms in emerging economies could also have an impact on wages in Canada, particularly in sectors exposed to trade. Firms were asked three questions concerning offshoring, including its impact on Canadian wages, and more generally the role of competition from developing countries on wage bargaining in Canada (Table 7).

Nearly 60 per cent of firms surveyed indicated that it was impossible to offshore production, due to the nature of their business.<sup>25</sup> A further 22 per cent indicated that, while offshoring was possible, they had, so far, chosen not to do so. The remaining 19 per cent had already moved, or intended soon to move, part of their production offshore. As might be expected, firms in the manufacturing sector were most likely to participate in offshoring. One-third of manufacturers had either moved part of their production offshore or intended soon to do so. A further 30 per cent could have moved production offshore but had not, and only 37 per cent said offshoring was impossible. A strong majority of firms in all other sectors of the Canadian economy, but especially firms in the service sectors, said that offshoring was impossible.

Firms gave a variety of reasons for not having offshored production yet. Nearly one-third foresaw doing so when production levels suitable to offshoring were attained, or when they had the necessary resources to take on that type of project. Others feared that the quality of offshored production would not meet their standards. A few stated that this

<sup>24</sup> For more information on offshoring in Canada, see Baldwin and Gu (2008).

<sup>25</sup> Blinder and Krueger (2009) find that about 25 per cent of individual U.S. jobs are offshorable. While the Wage Setting Survey question was about a firm's ability to outsource production, these results are roughly similar.

production option did not fit into their business strategy, since they preferred to support local workers and/or monitor production closely.

**Table 7: Increased competition from developing countries**

Question	Survey question and key results
C1	<p><b>Have you recently outsourced some aspects of your production to a newly industrialized country or do you intend to do so in the coming year?</b> [ n=201, entire sample]</p> <p>(1) yes, we did outsource recently (16%)*  (2) yes, we intend to outsource in the coming year (8%)*  (3) no, we could but have chosen not to (22%)  (4) no, it is impossible to outsource (59%)</p> <p>* 11 firms answered yes to both (1) and (2); percentages therefore exceed 100%.</p>
C2	<p><b>If yes, did it have (or do you expect this to have) an impact on wage bargaining with your workforce?</b> [ n=38, firms replying "yes" to C1]</p> <p>Yes (18%)      No (82%)</p>
C3	<p><b>In general, does increased competition from developing countries have an impact on wage bargaining with your workforce?</b> [ n=201, entire sample]</p> <p>Yes (7%)      No (82%)      Do not know (11%)</p>

Of the 38 firms for which offshored production is a relevant option, a strong majority (82 per cent) did not expect much of a direct impact on wage-setting decisions at their firm. Most firms suggested that the impact had been, or would be, largely on employment levels or future hiring activity. Managers explained that they had moved production requiring unskilled workers offshore, while retaining activities depending on skilled labour at home, and that the wages of the latter were unaffected by the move. While these actions could be expected to indirectly depress the wages of unskilled workers, firms would not be in a position to see this effect and therefore made no link. Most firms also discounted the role that increased competition from emerging economies had played on direct wage negotiations at their firm.

### 3.13 Does the substitutability of capital for labour influence wage bargaining?

Competition from emerging economies and the strong appreciation of the Canadian dollar in recent years has induced Canadian firms to improve productivity by substituting capital for labour<sup>26</sup> and other measures. It is also plausible that when a firm invests in capital to reduce labour content, wage negotiations may be influenced. Firms were asked about the ease of substituting capital for labour, and its impact on wages (Table 8).

Fifty per cent of firms in the sample stated that it would be impossible for them to reduce labour costs by investing in capital. Eleven per cent of firms indicated that they were in a position to substitute capital for labour, but had decided not to do so. The high cost or

<sup>26</sup> See Bank of Canada (2006).



lack of capital and/or the limited benefits from economies of scale (i.e., low volumes of activities) were cited most often as deterring factors. The remaining 39 per cent of firms had recently made this type of investment and/or planned to do so in the coming year.

This kind of substitution was more common for medium-sized and large enterprises (40 and 44 per cent, respectively) than for small firms (29 per cent). The benefits from economies of scale clearly play a key role here. A strong majority of the firms with past or expected capital deepening believed that it did not affect wage negotiations with their employees (Table 8, Question C5). Anecdotally, many also did not expect to cut their workforce after the investment, but instead would limit new hiring. In many cases, the investment was motivated by anticipated retirements, or to address labour shortages and/or improve quality.

<b>Table 8: Capital-labour substitution</b>	
<b>Question</b>	<b>Survey question and key results</b>
<b>C4</b>	<p><b>Have you recently substituted capital (investment in machinery and equipment) for labour or do you intend to do so in the coming year?</b> [n=201, the entire sample]</p> <p>(1) yes, we have recently (34%)*  (2) yes, we intend to do so in the coming year (18%)*  (3) no, we could but have chosen not to (11%)  (4) no, this type of substitution is impossible to do (50%)  * 29 firms answered yes to both (1) and (2); percentages therefore exceed 100%.</p>
<b>C5</b>	<p><b>If yes, did it have (or do you expect this to have) an impact on wage bargaining with your workforce?</b> [n=77, firms replying (1) or/and (2) to C4]</p> <p>Yes (19%) No (79%) Do not know (1%)</p>
<b>C6</b>	<p><b>How long does it take to substitute capital for labour in your firm?</b> [n=69, firms replying (1) or/and (2) to C4; 8 firms answered "do not know" to C6]</p> <p>Result: 13 months on average</p>
<b>C7</b>	<p><b>If the cost of one type of labour rises significantly relative to other types of labour, is it possible to use more of the less expensive labour and less of the more expensive labour in the production of the product / service you sell?</b> [n=201, entire sample]</p> <p>Yes (13%) No (81%) Do not know (5%)</p>
<b>C8</b>	<p><b>If yes, how long would it take to do so?</b> [n=27, firms replying "yes" to C7; 17 firms answered "do not know" to C8]</p> <p>Result: 9 months on average</p>

Results for Question C6 suggest that the substitution of capital for labour takes, on average, 13 months; there is, however, significant variation across the sample. A final set of questions (Table 8, Questions C7 and C8) asked firms about the possible substitution of different types of labour given a change in their relative prices. Only 13 per cent of the firms confirmed this type of substitution was possible. This kind of substitution, on



average, took nine months. For many firms, occupational groups are too distinct and specialized to allow for such substitution. In the few cases where firms did see this as relevant, substitution was often described as subtle rather than explicit. For example, firms pointed to cases where the responsibilities of more expensive occupations such as engineers were gradually transferred to technicians.

### **3.14 Are real base wages easier to cut than nominal base wages?**

Participants in the Wage Setting Survey were asked both factual questions about their past behaviour regarding real and nominal wage cuts and hypothetical questions about their likely reaction to situations where wages needed to be cut. About 31 per cent (Table 9, Question C9) of respondents remembered having at some point offered their workforce pay raises below the inflation rate; only 5 per cent had done so frequently, while 26 per cent stated that it was a rare event.<sup>27</sup> Three-quarters were small and medium-sized firms. This is more than the number of respondents who replied that they had initiated nominal wage cuts (8 per cent, see section 3.16), suggesting that Canadian firms find real wages easier to cut than nominal wages.<sup>28</sup>

Firms reporting past real wage cuts were asked if an inflation rate near zero would make it more difficult to operate their firm by circumventing this channel to trim real wages. Approximately half of this smaller group agreed that it would. Some managers felt that inflation "does cover some sins" and provides some flexibility when the firm's survival is threatened. Others said that workers expect "a push up every year" and that it would be difficult to convince them that "zero is keeping pace." Nearly as many (43 per cent) however, disagreed and said that lower inflation would not make it more difficult to operate their firms. One manager believed that "low inflation makes wage control much easier" and another said he "would do what it takes" to protect his firm. Still, even these managers were skeptical of the benefits of wage cuts in any form.

All survey participants were further asked (Question C11) to imagine two scenarios where real wages needed to be cut by 2.5 per cent. In one scenario, a wage freeze would be exactly sufficient, and in the second "low-inflation" scenario nominal wages would need to be cut. An overwhelming majority (92 per cent) felt that a wage freeze would be more acceptable than a nominal wage cut. Of these firms, a strong majority indicated that the negative consequences of a money wage cut would be large enough to stop them from implementing it. Many spontaneously offered alternatives, which included laying off staff, cutting bonuses and freezing wages for a longer period. Many believed cutting nominal wages would cause far more harm than any of these or other alternatives. This result provides fairly compelling evidence that real wage cuts, while also difficult to implement, are much more appealing to managers than nominal wage cuts. As highlighted by Fagan and Messina (2009), this result has implications for optimal steady-state inflation.

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<sup>27</sup> Note that the Wage Setting Survey was conducted prior to the 2009 recession, and so recessionary conditions (1991/92) would have been a distant memory for most. Still, some firms, manufacturers and export-oriented firms, in particular, had recently faced difficulties.

<sup>28</sup> See Knell (2010) for a discussion of the theoretical difficulties of real wage cuts.

The hypothetical nature of these questions does not offer conclusive evidence about the existence of downward nominal wage rigidity. We can, however, state with some confidence that most firms are reluctant to cut the nominal wages of their employees, even in difficult economic circumstances. Data pertaining to wage expectations from the *Business Outlook Survey* (BOS) during the 2009 recession provide further information on this topic. From December 2008 to December 2009, 485 firms took part in the BOS and provided views regarding wage expectations for the next year. Of these, only 1.7 per cent (eight firms) reported expectations of wage cuts and 23.6 per cent expected wage freezes. In both the Wage Setting Survey and the BOS, many other alternatives seemed much more likely to managers before nominal base wages would be cut. These alternative options are discussed in greater detail in the next section.

**Table 9: Real vs. nominal wage adjustments**

Question	Survey question and key results
C9	<p>Have you ever used inflation to reduce the real wage (the wage adjusted for inflation) by offering a wage increase which was less than the inflation rate (for example, inflation is 2% and you offer a wage increase of 1%)? [ n=200]</p> <p>Yes, often (5%)      Yes, but rarely (26%)      No (70%)</p>
C10	<p>If this way to reduce the real wage was not available (because inflation was zero or near zero) would it make it more difficult to operate your firm? [ n=62, firms replying "yes" to C9)]</p> <p>Yes (49%)      No (43%)      Do not know (8%)</p>
C11	<p>Imagine a situation in which your firm is facing some difficulties and senior management needs to trim real wages (i.e., wages adjusted for inflation) by 2.5% to protect the firm from further financial stress. The two following scenarios are considered:</p> <p>Scenario 1: Inflation in the economy is 2.5% and you are asking for a wage freeze Scenario 2: Inflation is 1.0% and you are asking for a 1.5% wage cut</p> <p>Is one of these two scenarios easier to implement than the other? [ n=199]</p> <p>(1) = 1 easier than 2 (92%) (2) = 2 easier than 1 (0%) (3) = no significant difference between 1 or 2 (8%)</p>
C12	<p>Are the additional negative feelings and their consequences large enough that they would stop you from actually cutting money wages? [ n = 184, firms answering (1) to C11]</p> <p>Yes (71%)      No (21%)      Do not know (8%)</p>

### 3.15 What do firms do when demand slows or speeds up?

Firms can respond to demand shocks in many different ways. For the purposes of the survey, firms were asked to focus on the different labour-related measures they may take in response to a change in demand conditions.<sup>29</sup> Firms were then asked to provide the sequence in which they would implement alternative measures and estimate (in months) how soon they would implement them (Table 10).

When faced with a negative demand shock, 34 per cent reported that decreases in incentive pay would be the first measure taken to trim labour costs.<sup>30</sup> Managers, in some cases, argued that this element of pay would fall automatically after a negative demand shock, since it is discretionary and often directly linked to indicators of corporate performance. This explains why the lag for implementing this measure is so short (1.9 months).

Reducing the use of temporary employees was also seen as an early measure taken by a high proportion of firms – 32 per cent reported this as their first measure and 25 per cent reported it as their second to reduce labour costs. The average lag to implementation is also very short (1.8 months). Many managers, however, believed that this measure would not provide significant savings, since temporary workers often constitute very little of their total wage bill. Results from Question A4 (see Table B1, Appendix B) suggest that temporary employees represent, on average, only 5 per cent of total employment.<sup>31</sup>

Reductions to permanent staff and/or hours worked per employee would be the next steps in labour input reductions (Table 10). Laying off permanent staff was the most pervasive of the six measures firms could choose to trim labour – it was applicable to 87 per cent of firms, but was most often a second or third choice. The average lag for implementing a layoff of permanent staff was 4.3 months. Reducing hours worked per employee was chosen by a smaller percentage of the entire sample, but for these firms it has a shorter lag (2.0 months). It was the most likely second choice of goods-producing firms, whereas layoffs were the most likely second choice of service firms. Reducing other elements of total compensation and reducing base pay were the least likely measures firms would implement, and have the longest lags.

The results are clear: firms are typically reluctant to reduce base wages. With the noted exception of incentive pay, firms typically choose to reduce the quantity of labour inputs (hours or employees) rather than reduce compensation offered to workers.<sup>32</sup> Incentive

<sup>29</sup> While Questions C13 and C14 are hypothetical questions, most managers called on past experiences in the firm's history to answer this question. In most cases, managers had a clear sense of the order in which measures to cut labour costs would be implemented.

<sup>30</sup> Sixty-five per cent of firms in the finance, insurance and real estate sector chose this as their first measure.

<sup>31</sup> According to Cao, Shao and Silos (2011), temporary employees represent about 14 per cent of the total Canadian labour force.

<sup>32</sup> European data reveal additional methods of adjusting to shocks without cutting the quantity of labour: reducing benefits, changing shift assignments, slowing promotions, recruiting new employees at a lower wage than those who voluntarily leave and encouraging early retirement (Babecky et al. 2008).

pay, however, offers a possible source of downward flexibility in total compensation, even if base pay is inflexible downwards. Further research would be required to establish that this is actually the case.

**Table 10: Change in labour inputs when demand changes**

Question	Survey question and key results					
<b>C13</b>	<p><b>Imagine demand for your main product has fallen unexpectedly. While the drop may not be permanent, there is uncertainty as to how soon a pick-up will occur. In addition to different ways of reacting (for instance, by reducing prices, non-labour costs and profit margin) if you were to target labour costs, indicate which three (3) of the following measures you would take and in what order (first, second, third). Specify, if possible, the number of months you would wait for before taking these measures.</b></p>					
	Measures	Percentage responding*	Order % 1 <sup>st</sup>	Order % 2 <sup>nd</sup>	Order % 3 <sup>rd</sup>	Months (average)
	Reduce base pay	12%	2%	3%	7%	7.1
	Reduce incentive pay	50%	34%	11%	6%	1.9
	Reduce other elements of total compensation	20%	1%	7%	12%	7.2
	Reduce the number of temporary employees**	61%	32%	25%	4%	1.8
	Reduce the number of permanent employees	87%	16%	30%	42%	4.3
	Reduce the number of hours per employee	50%	16%	22%	12%	2.0
<b>C14</b>	<p><b>Imagine an opposite scenario in which demand for your main product increased enough that some additional labour inputs are needed to ramp-up output. Again, the increase in demand may not be permanent, but may last for a while. Indicate which three (3) of the following measures you would take and in what order (first, second, third). Specify, if possible, the number of months your firm would wait for before taking these measures.</b></p>					
	Measures	Percentage responding*	Order % 1 <sup>st</sup>	Order % 2 <sup>nd</sup>	Order % 3 <sup>rd</sup>	Months (average)
	Increase hours worked by current staff (overtime)	73%	55%	15%	4%	0.5
	Hire temporary workers**	66%	18%	41%	7%	1.3
	Hire permanent workers	81%	12%	22%	47%	3.4
	Increase base pay	9%	1%	2%	6%	5.9
	Increase incentive pay	21%	10%	4%	8%	2.7
	Increase subcontracting	26%	5%	12%	10%	2.2
	Increase outsourcing in a newly industrialized country	5%	0%	2%	3%	2.7
* Percentage of firms that would apply this measure regardless of its rank.						
** Temporary workers include both direct temporary workers and workers indirectly employed through an employment agency.						



Question C14 asked firms to consider the opposite scenario, where demand has surged and output needs to be ramped up but the permanency of this surge is unknown. The most likely steps taken by companies to meet increased demand would be to increase the number of hours worked by current staff, followed by hiring temporary workers and finally permanent workers. Again, all three of these measures suggest that quantity effects are the first to react to an increase in demand. Furthermore, employers are quick to act on the first two measures. In contrast, they wait an average of three months before hiring permanent workers.

### **3.16 How pervasive are specific measures to control labour costs?**

In addition to the hypothetical questions discussed in the previous section, firms were asked factual questions about their use of specific labour cost control measures over the past decade (Table 11). Almost half of the firms surveyed (48 per cent) have resorted to wage freezes and, on average, these freezes have affected 62 per cent of their workforce (Table 11, Question C15).<sup>33</sup> Small and medium-sized firms and firms in the manufacturing and primary sectors were more likely than others to report having frozen base wages over the past ten years.<sup>34</sup> Wage cuts, in contrast, were much rarer and typically applied to a much smaller percentage of the firm's workforce. Eight per cent of our sample had imposed nominal wage cuts over the past decade. On average, this measure applied to only 31 per cent of the workforce – often specifically to middle and senior management.

Beyond nominal wage cuts and freezes, Question C17 asked survey participants to identify other measures implemented: commonly cited were reducing (or eliminating) incentive pay (35 per cent), slowing (or freezing) the rate at which promotions are filled (33 per cent) and recruiting new employees at a lower wage than that earned by those leaving the company (34 per cent). A smaller percentage (18 per cent) of firms opted to reduce (or eliminate) elements of total compensation other than the base wage and incentive pay. Ten per cent reported the use of early-retirement programs to replace highly paid employees with new employees at lower wages. Finally, 27 per cent of firms resorted to other strategies (including attrition). These findings again suggest that while the base salary may be somewhat rigid downwards, there are ways to create flexibility in the other items of the compensation package.

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<sup>33</sup> This result may seem inconsistent with the answers to Question C9 (Table 9), where 31 per cent of firms reported using inflation to reduce real wages. There are several reasons why these two need not be the same. One reason is that Question C9 asked about a real wage cut and not a wage freeze specifically. Furthermore, Questions C9 and C15 covered different time frames. Finally, Question C15 allowed firms to report a freeze even when it applied to only a very small portion of their workforce.

<sup>34</sup> Very few firms in the finance, insurance and real estate sector have implemented wage freezes. This result may be linked to an earlier discussion of the role incentive pay plays in this sector.

**Table 11: Labour cost reduction strategies**

Question	Survey question and key results
<b>C15</b>	<p><b>Over the last ten years, has the base wage of your employees ever been frozen?</b> [ n=201, entire sample]</p> <p>Yes (48%)      No (52%)</p> <p><b>If yes, indicate for what percentage of your employees</b> [ n=96, firms replying "yes"]</p> <p>Result: 62% on average</p>
<b>C16</b>	<p><b>Over the last ten years, has the base wage of your employees ever been cut?</b> [ n=201, entire sample]</p> <p>Yes (8%)      No (82%)</p> <p><b>If yes, indicate for what percentage of your employees</b> [ n=16, firms replying "yes"]</p> <p>Result: 31% on average</p>
<b>C17</b>	<p><b>Over the last ten years, have any of the following strategies ever been used to reduce labour costs?</b> [ n=201, entire sample]</p> <p>(1) reduction or elimination of incentive pay (bonuses, stocks option) (35%)</p> <p>(2) reduction or elimination of non-pay benefits (benefits, pensions, work arrangements, etc.) (18%)</p> <p>(3) slowdown or freeze of the rate at which promotions are filled (33%)</p> <p>(4) recruitment of new employees (with similar skills and experience) at a lower wage than those who left (e.g., due to voluntary quits and retirement) (34%)</p> <p>(5) use of early retirement to replace high-wage employees by entrants with a lower wage (10%)</p> <p>(6) other strategies (27%)</p>

#### **4. Summary and Concluding Remarks**

This final section briefly summarizes key findings from the survey, suggests areas for further research and highlights important implications.

##### **4.1 Basic facts about private non-union wage-setting behaviour**

Canadian non-union private firms largely set wages on a fixed annual timing regardless of firm size, sector or region. This key result strongly suggests that one-year Taylor-style wage adjustments are an appropriate assumption for Canadian non-union wage-setting behaviour. Unanticipated events can put pressure on these annual adjustments. Still, approximately half of the firms surveyed said they never adjust wages between annual reset dates, suggesting a relatively strong adherence to an annual duration for contracts. For the other half of the firms, these ad hoc adjustments occur to varying degrees. They are most commonly offered to individuals or small subgroups of a firm's workforce as the need arises. About 8 per cent of the entire sample cited ad hoc adjustments that applied to the majority of their workforce. When they did occur, these adjustments were often linked to tight labour markets. The sample was collected at a time when

unemployment rates in Canada were historically low. This result could therefore be biased upward relative to more typical labour market environments.

While wages are largely set annually, adjustments are not evenly staggered throughout the year. Evidence collected in this survey strongly suggests that Canadian non-union private wage adjustments are clustered between January and April. These results are consistent with a similar wage survey conducted by the European Central Bank, and suggest that firms from different countries have similar wage-setting behaviours.

Setting wages requires firms to weigh various factors. Many firms place a great deal of importance on the market wage, rating this factor most important when adjusting wages (Chart 3). Three other factors also received widespread acceptance as important factors: the firm's profitability, difficulty in attracting staff and workers' productivity. Changes in the price of the firm's own products and services were unambiguously seen as the least important factor among the eight provided.

Depending on firm size, different strategies are used to determine the current value of the market wage. Large firms tend to rely heavily on national and regional surveys as a source of information. Smaller firms use their network of contacts or "word of mouth" as a source of information.

The majority of firms also take inflation into account when setting their wages, either directly by collecting information about inflation or indirectly by using market wages, which they view as having inflation already embedded. For those firms that directly link wages to some measure of inflation, most are commonly backward looking, few use automatic links such as COLAs and a large majority focus on a 12-month inflation horizon.

#### **4.2 Real and nominal wage rigidities**

Beyond simply collecting data about what firms do when they set wages, this survey investigated firms' behaviour surrounding nominal and real wage cuts through a mix of fact-based questions about their past behaviour and several hypothetical scenarios. Approximately one-third of firms reported that they had, at some point in the past, used inflation to trim real wages by increasing nominal wages, but at a rate less than inflation. These firms were asked if it would be more difficult to operate their firm under a scenario where inflation is at or near zero. Half confirmed that this was the case – trimming real wages through the effects of inflation is easier than through nominal wage cuts.

All firms were also presented with two hypothetical scenarios that could be used to trim real wages by 2.5 per cent. In the first scenario, inflation is exactly 2.5 per cent and a wage freeze will produce the required outcome. In the second, inflation is 1.0 per cent and a nominal wage cut of 1.5 per cent is required to produce the necessary savings. Nearly all firms agreed that a wage freeze would be easier to implement. When these firms were asked whether the negative feelings from the nominal wage cut would be large enough to stop them from cutting wages, three-quarters of firms agreed it would be.

Past use of nominal wage cuts and freezes was also probed. Evidence suggests that wage freezes are far more prevalent than wage cuts. Forty-eight per cent of the sample implemented wage freezes over the past ten years to control labour costs. Eight per cent reported wage cuts to a much smaller percentage of their total workforce, often to management ranks only.

Aversion to base nominal wage cuts is also revealed in other results from the survey. Managers were asked to list the measures they would take if demand unexpectedly fell and stayed low for an indeterminate period of time. Reducing nominal base pay (along with reducing other elements of total compensation) was the least likely measure chosen by firms as a means of reducing labour costs.<sup>35</sup> In aggregate, evidence points to downward nominal wage rigidities in private Canadian non-union wages, but finds relatively scant support for downward real wage rigidities. Few firms report indexation clauses – a channel that would lead to real rigidities.

This survey also provides relevant findings, following the methodology of Campbell and Kamlani (1997), concerning the reasons that prevent firms from cutting nominal wages. These will be discussed in a separate paper and tend to confirm that efficiency wage theories<sup>36</sup> hold much promise in explaining why wage cuts are a suboptimal choice for so many non-union firms. In particular, the adverse selection theory was chosen as the most relevant theory by the largest portion of the sample. Firms with some unionized workers also deemed efficiency wage theories to be relevant, but placed the most weight on the theory that union contracts prevent wage cuts (even to non-union staff).

#### **4.3 Areas for further research and some implications for models**

The results from the Wage Setting Survey show that firms place a heavy emphasis on the market wage rate as a source of information in their own wage decisions. More work is required to fully understand the process by which firms determine the market wage rate. For example, larger firms cited national and regional salary surveys as a key source of information about the market wage rate. A practical research exercise would be to catalogue and possibly interview organizations that produce wage and salary surveys.<sup>37</sup>

Furthermore, the results suggest that wage adjustments are not evenly staggered throughout the year and, by extension, nominal rigidities may not be constant over the year. In periods immediately following the first quarter, wages could be quite rigid,

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<sup>35</sup> Firms were asked to choose their top three measures to reduce labour costs.

<sup>36</sup> Efficiency wage theories argue that workers are paid an above-market wage rate by managers to reduce undesired behaviours such as shirking and worker turnover, and to maintain productivity and work effort.

<sup>37</sup> These interviews would be useful on several levels. For one, the Bank may wish to gain access to the time series associated with these surveys. More importantly, several questions could be investigated. For example, how often do these surveys take place? When do they take place? Are they prone to the same seasonal clustering as annual wage adjustments? Are survey questions about wage rates forward looking, contemporaneous or both? From where are samples drawn? Do firms participating in these surveys provide their "best guess" or actual wage changes? Do they have an opportunity to alter their expectations based on what other firms said?



thereby allowing monetary policy shocks to have larger-than-expected effects on real variables such as output and employment. In contrast, shocks in the period preceding this bunching of wage adjustments could be quickly taken into account by decision makers, and have little effect on real variables. The implications of this, along with supporting evidence for the United States, are discussed in Olivei and Tenreyro (2007). International evidence and the implications for the transmission mechanism are further discussed in Olivei and Tenreyro (2010). We would encourage that similar research be done for Canada to fully understand the implications of this uneven staggering of wage contracts for policy.

A large portion of Canadian firms have incentive pay schemes that allow them to curtail labour costs in soft markets. More work is required, however, to answer an important question about this source of compensation: is it large and pervasive enough to provide flexibility in total compensation when base pay is not flexible? Further research in this area could be very helpful for policy-makers.

Several key results from the survey hold important implications for model builders. For one, some firms reported having given ad hoc adjustments between annual wage changes to a significant portion of their workforce. These firms explained that the ad hoc adjustments took place in response to tight labour markets. It would be interesting to develop models that allow labour market tightness to have an impact on the frequency of wage adjustment. Models with search and matching frictions in the labour market, such as Blanchard and Gali (2010), could be a good starting point, given that there is a role for labour market tightness in those models.

Labour market tightness could also potentially have a role in determining wages. Firms in the survey considered "difficulty attracting and retaining employees" to be an important determinant when setting wages. To the extent that this is indicative of labour market tightness, it should have an impact on wage determination. It would be interesting to explore models with search and matching frictions in which labour market tightness has an impact on the wage. Note that this is not the case in standard dynamic stochastic general-equilibrium (DSGE) models (without search and matching frictions).

Only 13 per cent of firms in the survey report the use of formal COLA-style wage indexation rules. This evidence highlights two important implications. First, the indexation assumption made in current DSGE models, such as the ones developed in Smets and Wouters (2003, 2007) and in Christiano, Eichenbaum and Evans (2005), seems implausible in the Canadian context.<sup>38</sup> Furthermore, this evidence against indexation also helps reject the existence of real wage rigidity in Canada, which exists when wages are indexed to current inflation. Other results from this survey (see sections 3.14 to 3.16) point to the existence of nominal wage rigidity. Distinguishing between real

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<sup>38</sup> Comparisons to similar data for Europe in Druant et al. (2009) suggest that the levels of wage indexation are much lower in Canada than in Europe, on average. Results across European countries, however, do differ greatly. For example, German wage contracts are rarely linked to inflation (Bundesbank 2009), while nearly a third of the contracts in France are linked to inflation (Montornès and Sauner-Leroy 2009), suggesting that the indexation assumption may be appropriate in some countries.

and nominal rigidities is useful, because each has different implications for the optimal design of monetary policy (Blanchard and Galí 2007, 2010).

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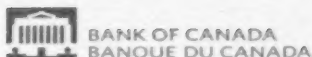
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## Appendix A



### Wage Setting Survey Questionnaire

#### Preamble

The Bank of Canada's monetary policy aims to support solid economic performance by keeping inflation low, stable, and predictable. How prices and wages respond to economic forces is central to monetary policy implementation. The purpose of this study is to better understand labour market developments in recent years. In particular, the Bank is interested in investigating how wages (and total compensation) are set by Canadian firms. Economists have many theories as to how firms make wage decisions, what information they use in making those decisions, and the links between wages and other factors such as productivity, pricing decisions, globalization, and inflation. This work will help the Bank better discriminate between these theories and therefore better understand the Canadian economy.

The survey is divided into three sections: Section A addresses basic questions about your firm, its workforce and your compensation package; Section B deals with information about the wage setting decision and practices at your firm; Section C examines the effect of recent economic developments on wage bargaining and tests theories economists have proposed about various aspects of a firm's wage setting behaviour. Most of the questions focus only on the non-unionized labour force, as this is the group of workers for which the firm has full control in terms of compensation.

Ideally, we would like to meet with both the Chief Financial Officer (CFO) and the Human Resources Director (or equivalent) of the firm. Many questions are about the workforce and the compensation package – questions with which the HR Director should be most familiar – while other questions focus on the firm's strategy with regards to wages and other production decisions – issues likely better known by the CFO. However, the firm itself is best placed to determine who should participate in this meeting. In certain circumstances, some small firms do not have a HR Director. In this case, we would meet only with the Chief Executive Officer (CEO), or the CFO when there is one. We would appreciate if you could look through the questionnaire, if you have time, before the meeting. This will facilitate the interview, but is completely optional.

Finally, although the Bank of Canada is subject to the Access to Information Act, please be assured that no private information will be released to the public and that your identity will not be revealed to the other participating organizations. The information collected will be used only for research purpose. Only aggregate figures, which do not permit the identification of individual records, will be published. A copy of the main aggregate findings of the survey will be sent to you once the research is completed. If you have any questions please contact your interviewer by phone or e-mail at the address listed below.

Your Interviewer: <name goes here>, phone number <phone number>, or 1-800-<phone number> if you call from outside <region>. E-mail: <e-mail goes here>

To be filled by the interviewer:

1. Date (survey collected) \_\_\_\_\_
2. Company name \_\_\_\_\_
3. Company number (from the sign-up sheet) \_\_\_\_\_
4. NAICS \_\_\_\_\_
5. Firm size    ☐ small                      ☐ medium        ☐ large
6. Region :    ☐ Atlantic Canada    ☐ Quebec    ☐ Ontario    ☐ Prairies    ☐ British Columbia
7. Contact name \_\_\_\_\_ Title \_\_\_\_\_
8. Contact phone number \_\_\_\_\_ Email address \_\_\_\_\_

**Section A**

**I. Company information**

- A1. Approximately what percentage of your total sales do each of the following markets represent:
- |                   |         |
|-------------------|---------|
| regional          | _____ % |
| rest of Canada    | _____ % |
| U.S.A.            | _____ % |
| rest of the world | _____ % |
- A2. How many firms (whether based in Canada or not) offer products / services that compete directly with yours (i.e. to satisfy the same needs of the same customers). If you sell many products / services, answer for your main product / service \_\_\_\_\_

**II. Workforce information**

- A3. Number of employees in Canada \_\_\_\_\_, of which:        (see the appendix)
- |                        |       |
|------------------------|-------|
| Permanent full time    | _____ |
| Permanent part time    | _____ |
| Temporary and seasonal | _____ |
- A4. Approximately, what percentage of your workforce is covered by a collective bargaining agreement?  
\_\_\_\_\_ %

- A5. How is your firm's workforce distributed across the following occupational groups?  
(See the appendix for definitions of occupations)

Groups	< 10 %	10% - 25%	26% - 50%	> 50%	Unionized or not
Blue collar low skilled: Production					
Blue collar high skilled: Technical, Trades					
White collar low skilled: Clerical, Sales					
White collar high skilled: Professionals, Managers					

- A6. What is the average length of employment service (best estimate) of your:  
 Total workforce \_\_\_\_\_ years  
 Non unionized workforce \_\_\_\_\_ years
- A7. Do you have a formal wage strategy (salary scale, performance assessment, etc.) for your non-unionized workforce?  
☐ yes ☐ no
- A8. Is your compensation system quite similar for the majority of your (non-unionized) employees?  
☐ yes  
☐ no (answer to the questionnaire in referring to your main non-unionized occupational group)
- A9. How easy or difficult is it to recruit new staff?  
☐ very easy ☐ fairly easy ☐ fairly difficult ☐ very difficult



### III. The total compensation package

A10. What percentage of your total costs do labour costs represent? (see the appendix)

☐ < 20%   ☐ 20% - 49%   ☐ 50% - 80%   ☐ > 80%

A11. What is included in the current compensation package of your non unionized workforce? (tick all that apply in column 1)

A12. How has their relative importance changed in the last decade? (if a factor is more important, put a positive sign (+); if less important, put a minus sign (-); if it has not changed, put an equality sign (=) in column 2)

Factors	A11 Included	A12 Change (+, -, =)
Base pay (wage)		
Variable pay (commissions, piece meal pay)		
Incentive pay (bonuses, stock options)		
Benefits (e.g. medical insurance)		
Pensions (retirement saving plans)		
Work arrangements (flex work, extra vacations, etc.)		
Job enrichment (training, conferences)		
Other (specify)		

### Section B

#### I. Frequency of wage adjustments (the following questions are related to base pay)

(Note: Wage adjustments refer to increase (or decrease) in the level of the pay structure, and not to movements associated to the advancement within the structure)

B1. Do you adjust wages:

☐ on a fixed timing (e.g. once every 6 months, once a year, etc.)  
☐ sporadically (go to B5)

B2. How frequently do you adjust wages?

☐ more than once a year (specify) \_\_\_\_\_  
☐ once a year  
☐ less than once a year (specify) \_\_\_\_\_

B3. Do you occasionally make adjustments outside the normal schedule to respond to significant / unanticipated developments?

☐ yes    ☐ no (go to B5)

B4. If yes, are these adjustments:

☐ most of the time upward  
☐ most of the time downward  
☐ as often upward as downward

Examples of events which may cause you to make an ad hoc adjustment:

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B5. Do the majority of your workers receive their adjustment at the same time?

☐ yes    ☐ no (go to B7)

B6. If yes, in what month? \_\_\_\_\_

B7. To the best of your knowledge, has the frequency of compensation adjustments changed in the last decade?

☐ yes                      ☐ no (go to B9)                      ☐ do not know (go to B9)

B8. If yes, have adjustments become:

☐ less frequent                      ☐ more frequent

B9. How is the timing of your wage changes related to that of your products/services price changes?  
(Choose only one option)

☐ there is no link between the two  
☐ there is a link but no particular pattern  
☐ decisions are taken simultaneously  
☐ price changes tend to follow wage changes  
☐ wage changes tend to follow price changes  
☐ do not know

## II. Determinants of wage adjustments

B10. In your wage setting decisions, do you take inflation into account?  
☐ yes ☐ no (go to B15)

B11. If yes, select the option that best reflects the policy followed:

Wage changes are automatically linked to:

- past inflation ☐ go to B13
- expected inflation ☐ go to B12
- both ☐ go to B12

Although there is no formal rule, wage changes take into account:

- past inflation ☐ go to B13
- expected inflation ☐ go to B12
- both ☐ go to B12

B12. If the inflation rate turns out to be higher or lower than the expected inflation rate on which your firm had raised base wages, would you make an adjustment the following year?  
☐ yes ☐ no, bygones are bygones (mistakes not corrected)

B13. On which inflation rate do you focus?  
☐ local/city ☐ regional/provincial ☐ national

B14. What time period (past or future) do you focus on?  
☐ < 1 year ☐ 1 year ☐ > 1 year

B15. How important is each of the following factors in your wage setting decisions? (check the most appropriate box; see the appendix)

	1	2	3	4	5
Factors	Not applicable	Not important	Slightly important	Fairly important	Very important
Firm's profitability					
Workers' productivity					
Workforce turnover rate					
Cost of living					
Market wage rate					
General state of the economy					
Changes in the price of products / services					
Difficulty to attract employees					

B16. What other factor(s), not listed above, are considered in your wage setting decision?

If "Changes in the price of your products / services" is not an important factor, or is not applicable, go to B19

B17. Concerning changes in the price of your products / services, do you focus on past changes or expected changes?

☐ past ☐ expected ☐ both

B18. What time period (past or future) do you focus on?

☐ < 1 year ☐ 1 year ☐ > 1 year

If "Market wage rate" is not an important factor, or is not applicable, go to B20

B19. Where do you get the information about market wage rates?

- ☐ national economy wide surveys (e.g. CBOC, Hay, Mercer, KPMG, etc.)
- ☐ national industry specific surveys (e.g. industry associations, etc.)
- ☐ regional surveys
- ☐ purpose built survey for your own needs
- ☐ word of mouth / informal network
- ☐ other sources

Concerning your wage setting decisions in general and to the best of your knowledge:

B20. Has your strategy changed in the last decade?

☐ yes ☐ no ☐ do not know ☐ n.a.

B21. Does your strategy differ by type of worker

☐ yes, in some cases ☐ yes, significantly ☐ no ☐ do not know ☐ n.a.

B22. Does your strategy differ by region?

☐ yes ☐ no ☐ do not know ☐ n.a.

B23. Does the compensation package offered to your unionized workers influence the one offered to your non-unionized employees?

☐ not at all ☐ a little ☐ moderately ☐ very much ☐ n.a.



## Section C

### I. Effects of recent economic developments on wages

#### Outsourcing and competition from developing countries competition

- C1. Have you recently outsourced some aspects of your production to a newly industrialized country or do you intend to do so in the coming year? (*by outsourcing, we mean transferring the production abroad, sub-contracting or buying from an independent firm*)
- ☐ yes, we did outsource recently  
☐ yes, we intend to outsource in the coming year  
☐ no, we could but have chosen not to (go to C3)  
☐ no, it is impossible to outsource (go to C3)
- C2. If yes, did it have (or do you expect this to have) an impact on wage bargaining with your workforce?  
☐ yes ☐ no ☐ do not know
- C3. In general, does increased competition from developing countries have an impact on the wage of your workforce?  
☐ yes ☐ no ☐ do not know ☐ n.a.

#### Productivity enhancement

- C4. Have you recently substituted capital (investment in machinery and equipment) for labour or do you intend to do so in the coming year?  
☐ yes, we have recently  
☐ yes, we intend to do so in the coming year  
☐ no, we could but have chosen not to (go to C7)  
☐ no, this type of substitution is impossible to do (go to C7)
- C5. If yes, did it have (or do you expect this to have) an impact on wage bargaining with your workforce?  
☐ no ☐ yes ☐ do not know
- C6. How long does it take to substitute capital for labour in your firm? \_\_\_\_\_ months or years
- C7. If the cost of one type of labour rises significantly relative to other types of labour, is it possible to use more of the less expensive labour and less of the more expensive labour in the production of the product / service you sell?  
☐ yes ☐ no (go to C9) ☐ n.a. (go to C9)
- C8. If yes, how long would it take to do so? \_\_\_\_\_ months or years

### II. Real vs. Nominal Wage adjustments in a context of low inflation

- C9. Have you ever used inflation to reduce the real wage (the wage adjusted for inflation) by offering a wage increase which was less than the inflation rate (for example, inflation is 2% and you offer a wage increase of 1%)?  
☐ yes, often ☐ yes, but rarely ☐ no, never (go to C11)

C10. If this way to reduce the real wage was not available (because inflation was zero or near zero) would it make it more difficult to operate your firm?

☐ yes    ☐ no    ☐ do not know

C11. Imagine a situation in which your firm is facing some difficulties and senior management needs to trim real wages (i.e., wages adjusted for inflation) by 2.5% to protect the firm from further financial stress. The two following scenarios are considered:

Scenario 1: Inflation in the economy is 2.5% and you are asking for a wage freeze.

Scenario 2: Inflation is 1.0% and you are asking for a 1.5% wage cut.

Is one of these two scenarios easier to implement than the other?

☐ 1 easier than 2

☐ 2 easier than 1 (go to C13)

☐ no significant difference between 1 or 2 (go to C13)

C12. Are the additional negative feelings and their consequences large enough that they would stop you from actually cutting money wages?

☐ yes    ☐ no    ☐ do not know

### III. Changes in economic situation

C13. Imagine demand for your main product has fallen unexpectedly. While the drop in demand may not be permanent, there is uncertainty as to how soon a pick-up will occur.

In addition to different ways of reacting (for instance, by reducing prices, non-labour costs and profit margin) if you were to target labour costs, indicate which three (3) of the following measures you would take and in what order (first, second, third). Specify, if possible, the number of months you would wait for before taking these measures.

Measures	Order (1 <sup>st</sup> , 2 <sup>nd</sup> , 3 <sup>rd</sup> )	months
Reduce base pay		
Reduce incentive pay		
Reduce other elements of total compensation		
Reduce the number of temporary employees (employed by the firm or through an employment agency)		
Reduce the number of permanent employees		
Reduce the number of hours worked per employee		

- C14. Imagine an opposite scenario in which demand for your main product increased enough that some additional labour inputs are needed to ramp-up output. Again, the increase in demand may not be permanent, but may last for a while.

Indicate which three (3) of the following measures you would take and in what order (first, second, third). Specify, if possible, the number of months your firm would wait for before taking these measures.

Measures	Order (1 <sup>st</sup> , 2 <sup>nd</sup> , 3 <sup>rd</sup> )	months
Increase hours worked by current staff (overtime)		
Hire temporary workers (or through an employment agency)		
Hire permanent workers		
Increase base pay		
Increase incentive pay		
Increase subcontracting		
Increase outsourcing in a newly industrialized country		

#### IV. Wage theory

- C15. Over the last ten years, has the base wage of some of your employees ever been frozen?

☐ yes (indicate for what percentage of your employees) \_\_\_\_\_% ☐ no

- C16. Over the last ten years, has the base wage of some of your employees ever been cut?

☐ yes (indicate for what percentage of your employees) \_\_\_\_\_% ☐ no

- C17. Over the last ten years, has any of the following strategies ever been used to reduce labour costs? (check all that apply)

- ☐ reduction or elimination of incentive pay (bonuses, stocks options)  
☐ reduction or elimination of non-pay benefits (benefits, pensions, work arrangements, etc.)  
☐ slowdown or freeze of the rate at which promotions are filled  
☐ recruitment of new employees (with similar skills and experience) at a lower wage than those who left (e.g. due to voluntary quits and retirement)  
☐ use of early retirement to replace high wage employees by entrants with a lower wage  
☐ other strategies (specify) \_\_\_\_\_

C18. For your firm, how relevant are each one of the following reasons in preventing wage cuts?

	Statement	Not relevant	Of little relevance	Moderately relevant	Very relevant	Do not know
1	Labour union contracts prevent wages from being cut.					
2	Workers dislike unpredictable changes in income. Therefore, workers and firms reach an implicit understanding that wages will neither fall excessively in recessions nor rise excessively in expansions.					
3	If your firm were to cut wages, it would damage your reputation as an employer making it more difficult to hire workers in the future.					
4	A cut in wages would reduce workers' efforts, resulting in less output or poorer service.					
5	A cut in wages would increase the number of workers who quit, increasing the cost of hiring and training new workers.					
6	If your firm were to discharge some of its current workers and hire new workers at a lower wage, the workers who remain would harass and refuse to cooperate with the newly hired workers.					
7	If your firm were to cut wages, your most productive workers might leave, whereas if you lay off workers, you can lay off the least productive workers.					
8	Workers who have been with the firm for a long time have learned how the firm operates and have formed relationships with co-workers and clients. A cut in wages may cause some of your long-time employees to leave, and their replacements would not have this inside knowledge of the firm.					
9	Independent of the effect of wage cuts on profits, people in management positions would be reluctant to cut wages in order to avoid employees' resentment toward them.					



## Appendix B

### Firm level characteristics of the sample

Key results from Questions A1 to A11 (see Table B1):

- Question A1 suggests that the average firm's home regional market represents more than half of its sales and that export markets represent about one-fifth of sales. Manufacturers are exceptions to this trend – exports for these firms represent, on average, 48 per cent of sales. Most of these are destined for markets in the United States. Firms in the construction, information and cultural industries, transportation and warehousing, and utilities (CITU) sector are predominantly local suppliers – 72 per cent of their sales are within their home region.
- More than half of firms reported having between 6 and 20 competitors.<sup>39</sup> The proportion of firms that have very few competitors is highest in the CITU sector – mainly due to the utilities sector. The community, business and personal services (CBPS) sector has the highest percentage of firms competing with more than 20 other firms.
- Two questions were asked to establish recent corporate performance (Question A3) and the level of difficulty firms faced in recruiting new staff (Question A10). Answers to both questions confirmed the strength of the Canadian economy in the years prior to and during the survey.<sup>40</sup> About half characterized their recent corporate growth as strong and a further 40 per cent as moderate. The remaining 11 per cent, with weak or negative growth, were disproportionately represented by firms struggling with a higher Can\$/US\$ exchange rate; many of these were manufacturers. Sixty-eight per cent of firms believed it was very or fairly difficult to recruit new staff (Question A10).
- An average firm in this sample employed 1,688 staff – of these, 70 per cent were permanent full-time staff, 25 per cent were permanent part-time staff and the remaining 5 per cent were temporary or seasonal staff. This variable (number of employees) is used as the key measure of firm size in the report. Small firms are defined as having less than 100 employees; medium-sized firms and large firms have between 100 and 499 and 500 employees, respectively. On average, small, medium-sized and large firms in the sample have, respectively, 56, 269 and 4,869 employees.
- As stated in the introduction, the goal of the Wage Setting Survey was to better understand the wage-setting behaviour of the non-unionized Canadian workforce. Still, many Canadian firms have both a unionized and a non-unionized workforce (nearly 40 per cent of our sample). The average unionization rate for the entire sample is 17.5 per cent (Question A6). For those firms with a union presence, that figure is 50 per cent. Rates of unionization also vary widely by sector and region.

<sup>39</sup> Competitors were defined as firms offering products or services that satisfy the same needs of the same customers.

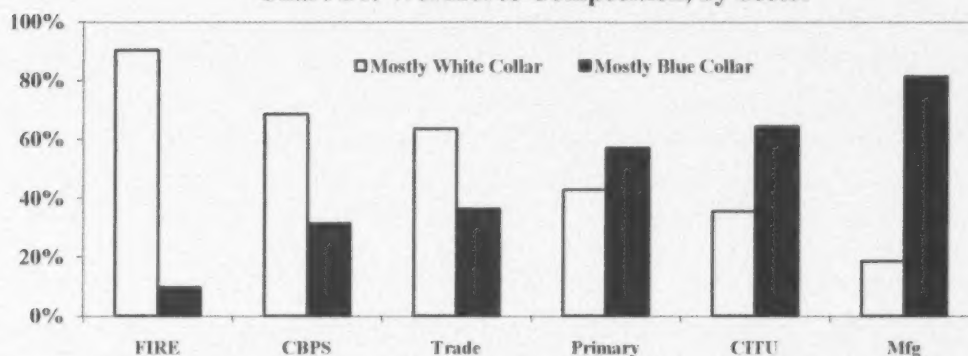
<sup>40</sup> For example, the unemployment rate in the six months over which this survey was conducted averaged 5.95 per cent, a relatively low unemployment rate for the Canadian economy by any standard.

**Table B1: Company and labour force information**

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Question	Survey question and key results						
A1	Approximately what percentage of your total sales do each of the following markets represent: [ n=199] Regional (58%)   Rest of Canada (21%)   U.S.A. (14%)   Rest of the world (6%)						
A2	How many firms (whether based in Canada or not) offer products/services that compete directly with yours (i.e. to satisfy the same needs of the same customers) [ n = 200]  ≤ 5 (29%)   >5 and ≤ 20 (57%)   >20 (14%)						
A3	On average, how would you qualify your firm's growth over the last five years [n=145]  Strong (49%)   Moderate (40%)   Weak (8%)   Negative (3%)						
A4	Number of employees in Canada [ n = 201] Total (1,668 on average) of which: Permanent full time (70%)   Permanent part time (25%)   Temporary and seasonal ( 5%)						
A5	How is your firm's workforce distributed across the following occupational groups? [n=179]						
	Groups	na/0%	1- 10%	10-25%	26-50%	> 50%	Union%
	Blue collar low skilled	23%	22%	18%	17%	20%	32%
	Blue collar high skilled	29%	21%	21%	18%	12%	27%
	White collar low skilled	2%	31%	30%	23%	13%	8%
	White collar high skilled	2%	37%	27%	14%	21%	1%
A6	Approximately, what percentage of your workforce is covered by a collective bargaining agreement? [ n = 201]  17.5 per cent on average						
A7	What is the average length of employment service of your: [ n = 201] Total workforce ( 8.8 years on average)   Non-unionized workforce (8.3 years on average)						
A8	Do you have a formal wage strategy for your non-unionized workforce? [ n = 201]  Yes (67%)   No (33%)						
A9	Is your compensation system quite similar for the majority of your non-unionized employees?[ n = 198]  Yes (82%)   No (18%)						
A10	How easy or difficult is it to recruit new staff? [ n = 201]  Very easy (4%)   Fairly easy (27%)   Fairly difficult (48 %)   Very difficult (20%)						
A11	What percentage of your total costs do labour costs represent?  < 20% (19%)   20% - 49% (42%)   50% - 80% (35%)   > 80% ( 3%)						

- Previous studies<sup>41</sup> have found that a firm's occupational profile (Question A5) may influence its wage-setting behaviour and its motivation for resisting nominal wage cuts. Managers were therefore asked to provide a brief profile of their firm's occupational makeup. The data conform well to expectations about the nature of the workforce in different sectors (Chart B1). For example, the manufacturing, construction and primary sectors have a predominantly blue collar workforce, whereas the service sectors are heavily weighted toward white collar occupations.<sup>42</sup>

**Chart B1: Workforce Composition, by Sector**



- The average job tenure reported by firms (Question A7) participating in this survey was 8.3 years for non-unionized employees and 8.8 for the total workforce. Job tenure was lower in the Prairies and British Columbia than in the other regions – a result that is likely explained by the faster rates of economic and job growth in these regions in the years prior to the survey. The average job tenure of non-unionized employees is lowest in the CBPS sector (5.8 years) and highest in the manufacturing sector (9.5 years).
- Approximately two-thirds of respondents had a formal wage strategy (Question A8) for their non-unionized workforce (job descriptions, wage scales and other human resources practices). Large firms nearly universally had a formal and structured wage and compensation strategy. Small firms, particularly those with fewer than 40 employees, were least likely to report a formal wage package.
- Labour costs as a proportion of total costs (Question A11) vary greatly from sector to sector. Results suggest, for example, that labour costs represent less than 20 per cent of total costs for a large proportion of firms in the trade sector, but that they often represent more than half of the total costs for the majority of firms in the finance, insurance and real estate (FIRE) sectors.

<sup>41</sup> Campbell and Kamlani (1997).

<sup>42</sup> The trade sector has the highest percentage of firms with mostly low-skilled workers (91 per cent), while the CITU sector has the highest percentage of firms with mostly high-skilled workers (78 per cent).